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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/580,965

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EXAMINER

MULL, FRED H

ART UNIT

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/580,965	Applicant(s) MONNERAT, MICHEL	
	Examiner FRED H. MULL	Art Unit 3662	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 March 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 March 2008 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: 61. This reference sign was present in original Fig. 2, but is missing from new Fig. 2.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 1-9 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one

skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

In the amendment of March 25, 2008, applicant adds a limitation to a first correlation function (claim 1, line 11), and amends reference to the previously claimed correlation function to describe it as a second correlation function (claim 1, line 14).

However, the originally filed disclosure does not appear to provide support for two correlation functions. Indeed, on p. 6, lines 28-29 state: “a single correlation function is determined” (emphasis added). This point is reiterated on p. 6, line 32. Specifically, there does not appear to be support for a first correlation function before the summation step. The single correlation function occurs at multiplier 71 in Fig. 2 (p. 10, lines 14-20). The summation occurs prior to that at 61, which is missing from new Fig. 2 (p. 10, lines 12-15). The FFTs 31-33 and 41 transform the signals into the frequency domain, allowing the correlation to be done using a multiplication step rather than an integration step. FFT^{-1} 51 then transforms the result back into the time domain.

In summary, the FFTs and FFT^{-1} are not correlation functions. The correlation function occurs at multiplier 71, and then FFT^{-1} 51 transforms the result from the frequency domain into the time domain giving the time delays to be processed by the receiver.

The examiner notes that the prior art rejections remain over the original claims, since there is no support for the amended claim language, and applicant's analysis of Ma and applicant's own invention is flawed, as described in the response to arguments section at the end of this action.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over IDS document Ma in view of any one of {Krasner '734, Krasner '427, and King}.

In regard to claim 1, Ma discloses:

said receiver receiving a signal transmitted by a plurality of satellites and corresponding to a sum of signals each transmitted by a satellite and each modulated by a spread spectrum signal characteristic of said satellite (12, Fig. 1; col. 3, lines 11-13),

said receiver generating a plurality of local duplicates each of which is the duplicate of a spread spectrum signal characteristic of a satellite (26),

correcting the frequency of each of said local duplicates by compensating the Doppler effect of each of said satellites (34; col. 4, lines 61-63),

summing said plurality of corrected duplicates (26; col. 3, lines 36-39), and

determining the correlation function as a function of time between the sum of said plurality of corrected duplicates and said satellite data signal (30, 32; col. 3, lines 44-50).

Ma fails to disclose using assistance data sent by an assistance server to said mobile device as the source of the Doppler effect correction.

Ma discloses that a Doppler correction is made to the local duplicate (reference code) for initial acquisition (col. 4, lines 61-63), but fails to state the origin of this Doppler

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correction. It is noted that once acquisition begins, there is a loop process to update the Doppler correction, where the result of the correlation function from 32 is input into 34. But prior to initial acquisition, there is no output from 32, so no initial Doppler correction would be available. A Doppler correction would only be available after the first correlation is completed and there was an output from 32. Since Ma specifically states that “For initial acquisition, a Doppler correction reference code” [local duplicate] is used (col. 4, lines 61-63), a different source is necessary for this initial Doppler correction. Ma fails to disclose this source.

Krasner ‘734 (col. 3, lines 22-27; col. 5, lines 56-65), Krasner ‘427 (col. 10, lines 26-32; col. 16, lines 3-10), and King (col. 12, lines 6-11) disclose using Doppler effect correction assistance data sent by an assistance server to a mobile device to allow the user to rapidly compensate for Doppler effect. It would have been obvious to use this known source of Doppler correction as the source for the initial Doppler correction required in Ma. This source allows rapid compensation of Doppler effect, faster than other methods of determining Doppler correction that occur entirely at the mobile device.

In regard to claim 2, Ma further discloses identifying each of the satellites associated with each of the correlation peaks revealed by said correlation function (Fig. 2; col. 3, lines 54-61).

In regard to claim 3, Ma further discloses identifying the synchronization time associated with a correlation peak, determining a plurality of correlations calculated for said synchronization time between each of said corrected duplicates and said satellite

data signal, and identifying the satellite associated with said correlation peak as a function of said correlations (Fig. 2; col. 3, lines 54-61).

In regard to claim 4, Ma further discloses said peak is a main peak of said correlation function as a function of time (Fig. 2; col. 3, lines 54-61).

In regard to claim 5, Ma further discloses that after at least one satellite has been identified, each of the remaining satellites is identified, using assistance data sent to said mobile device from an assistance server, said assistance data including the ephemerides of said satellites and the identifier of the cell in which said mobile device is located, by determining the propagation time difference of a signal between said satellites already identified and said mobile terminal, on the one hand, and each of the satellites to be identified and said mobile device, on the other hand (Fig. 2; col. 3, lines 54-61).

In regard to claim 6, Ma further discloses each of said satellites is identified by the following steps: identifying the synchronization time associated with a correlation peak, determining a plurality of correlations calculated for said synchronization time between each of said corrected duplicates and said satellite data signal, and identifying the satellite associated with said correlation peak as a function of said correlations (Fig. 2; col. 3, lines 54-61).

In regard to claim 7, Ma further discloses:

summing the corrected duplicates (col. 3, lines 36-39),

determining the Fourier transform of said corrected duplicates (28, Fig. 1),

determining the Fourier transform of said satellite data signal (22),

multiplying the correct duplicate Fourier transform by the Fourier transform of said satellite data signal (30), and

determining the inverse Fourier transform of the product obtained by the preceding step (32).

Ma fails to disclose taking the Fourier transforms of each of the corrected duplicates prior to summing, instead he performs summation of the corrected duplicates first and then takes the Fourier transform (col. 3, lines 36-39). However, the two processes are mathematically equivalent. That is, individual signals being FFTed followed by a summation is mathematically equivalent to individual signals being summed, and then FFTed. Since these steps were art-recognized equivalents at the time of the invention, one of ordinary skill in the art would have found it obvious to substitute a summation of individually FFTed signals for the FFT of the sum of individual signals. Additionally, this is a simple substitution of one known, equivalent operation for another to perform the same function and to obtain predictable results.

In regard to claim 8, Ma further discloses:

means for generating a plurality of local duplicates each of which is the duplicate of a spread spectrum signal characteristic of a satellite (26, Fig. 1),

means for correcting the frequency of each of said local duplicates by compensating the Doppler effect of each of said satellites (34; col. 4, lines 61-63),

an adder adapted to sum said corrected duplicates (26; col. 3, lines 36-39), and

means for calculating the correlation function as a function of time between each sum of said corrected duplicates and said satellite data signal (30, 32; col. 3, lines 44-50).

Ma fails to disclose using assistance data sent by an assistance server to said mobile device as the source of the Doppler effect correction.

Ma discloses that a Doppler correction is made to the local duplicate (reference code) for initial acquisition (col. 4, lines 61-63), but fails to state the origin of this Doppler correction. It is noted that once acquisition begins, there is a loop process to update the Doppler correction, where the result of the correlation function from 32 is input into 34. But prior to initial acquisition, there is no output from 32, so no initial Doppler correction would be available. A Doppler correction would only be available after the first correlation is completed and there was an output from 32. Since Ma specifically states that "For initial acquisition, a Doppler correction reference code" [local duplicate] is used (col. 4, lines 61-63), a different source is necessary for this initial Doppler correction. Ma fails to disclose this source.

Krasner '734 (col. 3, lines 22-27; col. 5, lines 56-65), Krasner '427 (col. 10, lines 26-32; col. 16, lines 3-10), and King (col. 12, lines 6-11) disclose using Doppler effect correction assistance data sent by an assistance server to a mobile device to allow the user to rapidly compensate for Doppler effect. It would have been obvious to use this known source of Doppler correction as the source for the initial Doppler correction required in Ma. This source allows rapid compensation of Doppler effect, faster than

other methods of determining Doppler correction that occur entirely at the mobile device.

In regard to claim 9, Ma further discloses a mobile device incorporating an RNSS satellite navigation receiver according to claim 8 (10, Fig. 1; col. 1, line 61 to col. 2, line 20).

Conclusion

4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Response to Arguments

5. Applicant's arguments on p. 8, with respect to objections to the drawings, specification, and claims, have been fully considered and are persuasive, with the exception that reference number 61 is now missing from Fig. 2. The remaining objections have been withdrawn.

6. Applicant's arguments on p. 8-9, with respect to the rejection(s) over Ma have been fully considered but they are not persuasive.

Applicant's analysis of Ma is flawed. On p. 8, section III, lines 7-8, applicant identifies the FFT with a correlation function. The FFT is not a correlation function. The examiner notes he identified multiplier 30 in Fig. 1 as the correlation function, not FFT 28.

Applicant argues that Ma applies the FFT at a different time compared to applicant's invention (p. 9, lines 1-2). The examiner notes that he pointed out the difference in the order in which the FFT(s) and summation are performed in the rejection of claim 7. However, individual signals being FFTed followed by a summation is mathematically equivalent to individual signals being summed, and then FFTed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to FRED H. MULL whose telephone number is (571)272-6975. The examiner can normally be reached on Monday through Friday from approximately 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas H. Tarcza can be reached on 571-272-6979. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Fred H. Mull
Examiner
Art Unit 3662

/FHM/

/Thomas H. Tarcza/

Supervisory Patent Examiner, Art Unit 3662